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ABSTRACT

This document contains two papers dealing with challenges facing vocational educators. "Producing a Competent Workforce for the Year 2000: Industry Expectations of Education" (Lewis Burrell) draws the following conclusions: (1) employers and educators need to form a close coalition to plan, design, and execute a system of education and training that will meet the needs of the work force of the future; (2) education for the work force must be an ongoing process through either seminars or advanced systems of training; and (3) employers and educators must strive to demand experiences from their students and workers that will enable them to develop the qualities required to achieve anticipation, innovation, and excellence. "Quality Management: A Leadership Imperative for Vocational Education Administrators" (Maria Phillips) explores the role of total quality management in vocational education and discusses how, by changing attitudes, practicing teamwork, and improving quality, vocational administrators can develop a vocational education program based on the following four pillars of schools of quality: primary focus on suppliers and customers, dedication to continuous improvement, systems/process orientation, and strong and consistent total quality leadership from top management. (MN)

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A CHALLENGE TO VOCATIONAL EDUCATORS

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PATRICK J. O'CONNOR, Ed.D.
KENT STATE UNIVERSITY
FOR HIS HARD WORK AND DEDICATION TO
VOCATIONAL EDUCATORS AND OMICRON TAU THETA

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EDITOR'S NOTE

The information contained in the following articles contributes to the growing need for vocational educators to identify new methods to respond to new challenges. Vocational education, similar to all aspects of education, has experienced significant changes internally in response to various mandates from government, business and society. Clearly, the challenge for leaders in vocational education is to refine programming and delivery approaches to offer a more valuable service to business and society. Also, managing and leading the profession requires new approaches and strategies.

Dr. Lewis Burrell's article calls for greater collaboration between education and business/industry. The text of this article is a speech Dr. Burrell presented at the invitation of business and industry leaders. Maria Phillips, a vocational education supervisor, addresses the need for improved leadership. Her article relates to the quality approach to management, currently popular in business and industry, to vocational education. Both articles help all of us in vocational education to better understand the challenge of the future and how we can respond to it.

It is our hope that this document will be useful to students and current practitioners of vocational education. Also, we hope that vocational educators will discuss it with advisory board members, colleagues and those outside vocational education.

Patrick J. O'Connor, Ed.D.

Karen Hansen, Publications Editor

PRODUCING A COMPETENT WORKFORCE FOR THE YEAR 2000: INDUSTRY EXPECTATIONS OF EDUCATION

Dr. Lewis P. Burrell
Kent State University

(The following is an edited version of Dr. Burrell's remarks to the Job Service Employer Committee in Portage County, Ohio)

I am reminded of the Publication in Newsweek Magazine in the early '80s of the families in Appalachia where the news crew was sent to do a study for a week. Many of the Appalachian people in the study had lived near their homes for their entire lives without many of the modern conveniences. The idea behind the assignment was for the crew to spend an entire week observing how these people lived. Then they were going to take one family to New York City and see their reactions when outside their environment. In this family, the father, in his late sixties, had never traveled more than a few miles from home. So the crew followed the family for a week and then took them to New York--the concrete forest. The crew was instructed not to ask questions but just to observe the father's responses and make anecdotal records of what they saw. At the end of the day, they took the gentleman to the RCA Building and were observing what they saw. [Now to understand, we must think to ourselves how this man responded to everything and the experiences he was having]. There he was in the lobby of the RCA building. He couldn't believe what he was seeing. He had never seen an elevator before in his life. Out of the corner of his eye he saw this button lit up on the wall, and then this little old lady in her late sixties or early seventies wobbled up and pushed the button.

In a few moments the doors opened and the lady went through the doors and in a few moments the doors closed. His eyes were fixed on the door; he could not believe what he saw. In a few moments the doors opened again, and out walked a beautiful 23-year old woman. He could not take it any longer. He turned to the Newsweek crew and said, "You just cannot beat technology." "If I'd a known they invented one of those things, I'd a brought my old lady along with me."

Even though this was a real life example in modern times, it should be the exception rather than the rule. We are in an era of real change: change in lifestyle, change in work habit, change in business and industry operations, and change in the way our new generation will be educated.

In 1899, Charles H. Duell, Director of the U.S. Patent office, said, "Everything that can be invented has been invented." Several decades later in 1943, Thomas H. Watson, then Chairman for the Board of IBM, made the famous quote, "I think there is a world market for about five computers." In 1977, Ken Olson, President of Digital Equipment, said to his Board, "There is just no reason for any individual to have a computer in their home." I remember about fifteen years ago working with a group of educators on a grant of the classroom of the future. We developed a futuristic model and included such terminology in the grant as "global", "high tech", and " computer-based learning." The grant came back marked with one reader's comment which I will never forget: "too radical for the present goals of education."

Since that time I have seen year after year, more and more of those concepts merging into the mainstream of our educational system.

In fact, today's institutions of training are being bombarded with a barrage of acronyms: the 14 Deming points, the 7 tools for statistical process control, problem solving and decision making. And more recently, educators are going through infusion seminars in the recent and newest concepts which entail Total Quality Management (TQM), Job Assessment and Evaluation. While educators are being asked to teach such change concepts as TQM, they are also being asked to find ways to integrate this knowledge with existing older concepts such as the "human" side of enterprise, and with an integrated cultural technical change strategy.

All these concepts are exciting to CEOs, but the education of the future workforce must go much, much farther. A golden rule of education is to begin where the student is currently functioning. From that base, knowledge can be imparted, linked, and learned. The education of our national workforce in those terms is relatively simple: assess the worker, determine the knowledge base, and build knowledge and skill training upon that work base. Of course, that assessment will build upon the "human" side of worker aptitudes, interests, and abilities. Work ethic in America must begin with our citizenry from the time they initially enter learning as pre-schoolers or kindergartners, and continue throughout their lifetime. In other words, there must be life-long learning if our present and future workforce is to be both

competitive and productive. Some of the latest statistics reveal that current workers entering the workforce will be changing jobs at least seven times in a lifetime. By the year 2000, 41% of the workforce will require at least 13.5 years of education; that is up from the current 24%. On the other hand, the low skill occupations will diminish from the current 40% to 27% by the year 2000.

Joel Barker, President of Infinity Limited, a consulting firm to top management teams of Fortune 500 companies, in his book Future Edge, emphasizes three education components that companies will need to succeed fully into the 21st century. They are anticipation, innovation, and excellence. Of these three, even though excellence is last in the discovery process, it becomes the base. The Japanese call it Kaizen which means "honoring yourself because it acknowledges your capacity to grow and improve."

On the base of excellence, Mr. Barker places innovation as the basis for all progress. Innovation means we are creative, clever, smart, and always looking for better ways of doing things.

On top of Barker's pyramid is what he calls anticipation. This provides the real answers about a company's existence in such questions as: "Why are we here?" and "What is our role in the world?". Anticipating the future is finding the right pathway into that future. It not only provides for best choices but also advances the business and industry by allowing for the most efficient use of resources.

In education we would describe our American system as more or less a system of paradigms. In education, a paradigm does two

things: (a) it provides the parameters for an operation and (b) it provides internal activities which lend to the achievement of a goal. To make the point, it may surprise you to learn where the quartz watch was invented--in Switzerland at the Research Institute in Neuchatel. Only one thing--it didn't look like a watch, act like a watch, or sound like a watch--as the Swiss knew it. The Swiss conclusion: It just is not a watch. That was 1968 when the year the quartz prototype was displayed at the International Watch-Making Congress. The Japanese, seeing how the quartz watch concept fit in with new electronic technology, took one look, and it was love at first sight. Remember that was 1968. The Japanese had less than 1% of the world's watch market; the Swiss had 65%. Today, the Japanese have one-third of the world market in watches and the Swiss have 10%.

We, in America, are a nation of many paradigms. We have gone through these steps: set the parameters, devised the activities, and formulated the products. Then we've made what is called a Paradigm Shift and have moved on to new parameters while at the same time doing little with the products we've created. To name just a few: the video-tape recorder, the microwave oven, the color TV, and more recently the fax machine. In each of these products, Americans formed the parameters, financed the research & development, and completed the activities to develop them. Then we just stepped aside and began another parameter. We essentially gave these great inventions away--across the water--to another country that took our product and made a 'killin. We in America

can no longer allow these Paradigm Shifts if we are to gain and remain competitive in the global world market. We must avoid the pitfalls which are so seriously eroding our future.

"What will Industry Require of Education?" In direct response to that question, I think the answer comes from a close collaborative, shared endeavor on the part of both educators and employers from business and industry. The two can no longer remain comfortable as separate entities in which one accepts the product of the other. Each must be totally submerged in bringing about answers to a far reaching question--"How will we survive as a nation and a society given the current frame of our workforce?" That challenge can only be met through the creation of a skilled workforce that is competitive in a global economy. At stake is our country's economic opportunity, our standard of living, and our quality of life--right here in America.

Traditionally, the highest paying careers in the economy have required advanced education; However, no successful economy is built solely on the highest paying jobs. The strength of our nation's economy requires that "value" to be added across the whole spectrum of the workforce, from the unskilled laborer, to the skilled worker, to mid- and upper-level management. In order to achieve that strength, and to remain competitive, the American worker will need more education. Workers of the future must have the capacity and opportunity for lifelong learning, especially in the high-skilled, high-tech occupations.

Besides education, a competitive workforce will need training as well. And, of all this, the greatest single source of the nation's competitive edge is the "quality" of that workforce--the quality of peoples' work and the jobs they are skilled to do.

So the EMPLOYERS CAN EXPECT FROM EDUCATORS to become involved with meeting one major goal: to build America's competitive advantage by preparing students to be our world-class workforce, and to do it through a world-class education and training system. Quality vocational-technical education and training is more of a key to meeting the needs of employers, labor, local communities, and the nation's economy than ever before. It is the platform on which our standard of living continues to be built.

Public vocational-technical education is America's most widespread and cost-effective, job-training and school-to-work transition system. However, the system must be improved and made more effective. More direct involvement will be required with business and industry in initial program outlay, and a closer consultation from business and industry on the establishment of training needs. The current system already includes many critical, high-skilled occupations, and has the capacity of becoming our national training system. With the addition of some needed reforms, vocational education can become more responsive to the needs of employers and communities.

About one and a half years ago, I was privileged to be a U.S. Delegate to Weisbadedn, Germany, at a world conference where 88 nations came together to share views, concepts, values, ideas, and

friendships. At that time, our party of delegates was privileged to tour the newly liberated East Germany as well as the West. The contrast was phenomenal. Under the repression of Communism, little to nothing had been done to build the East--buildings were as they had been near the close of World War II. Everything was covered with black layers of soot and pollution. Some sight to behold. Even stores, as we knew them, did not exist. The West Germans have moved at least one bank into each major city for business purposes. Most of the commerce was taking place out of vendor vehicles which were pulled up along the curbs of the cities until stores could be reconstructed and opened. At that time every fifth building and every other street were getting a complete facelift and renovation. There was a five-year plan for the complete renovation of East Germany; I understand that plan is ahead of schedule and is near completion at this time.

There is one impression of that whole trip which will never leave me as long as I am a vocational educator. *I shall never forget the incredible productivity of the West German people.* The technology in place, and that being traded abroad, was second to none. The superior level of work and production was everywhere. Waste? Well, it was hidden if there was any.

Another impression which I also will never forget was the many expressions of the new found freedom seen on the faces of the peoples of the Eastern Block Countries. They, if I might say so, were ecstatic, jubilant.

It must also be noted that these countries with this new found freedom are *now a new labor force competing in a global world market.* *Those workers, who had been held under suppression for so many years, had a new zeal to train and develop. They are going to market their skills in this new global economy. To America, this now becomes another major force who wants a piece of the action.*

I came back from Europe with a new zeal and a new message on my lips: it's freedom and it's economics. Both are intertwined. If America is to remain free and to enjoy her freedom, we are going to have to be re-educated and rethink what made America great. We have the ability to exercise freedoms guaranteed under the constitution, and the free enterprise system is available to every one of its citizens. Both have a direct link to our nation's workforce.

At this time nationally (under the new administration), employers are again being asked/invited to become more and more involved in education. For example, the Department of Labor has asked employers to bring about new incentives for cooperative education and apprenteship training. Our Ohio Team returned from Washington just last week where they were trying to get a handle on the future direction of vocational training; the answer was, "The system is already in place; this administration is just going to build on it." I will tell you this, after so much *change* in the past four years, there were some happy faces at our briefing.

Here are some of these current federal *efforts of change* from the past administration and Congress where business and industry have been and are directly involved are:

Acts of Congress

America 2000

-- National goals and proposals for education reform were established including job-related, industry-specific skill standards, and the development of "skill certificates."

Job Training 2000

-- Addresses three groups of individuals: Those who just recently entered the workforce, those on public assistance, and those who are displaced workers. Skill clinics and youth-apprenteship programs have been initiated under this program.

The Carl D. Perkins Vocational

and

Applied Technology Education Act of 1990 (P.L. 101-392)

-- Prescribes and emphasizes education and training of special-needs student populations. A close link is set

between business and vocational education with emphasis on the opportunities for academics and for Tech Prep.

Reports and Studies

Workforce 2000

-- Studied the mismatch developing between the skills of the workforce and the jobs of the future economy.

The Forgotten Half: Non-College Youth in America

-- Concentrates on the specific problems of the nation's 20 million noncollege-bound youth, ages 16 to 24. These youth are in a job scramble of part-time, low-paying, limited-future employment opportunities.

America's Choice: High skills or low wages!

-- Analyzes the economy and predicts the population shifts in the future workforce. The findings reveal that workers of the future must increase productivity rather than businesses increasing the size of the workforce to maintain and improve the standard of living enjoyed in the past.

PRESENTATIONS

The Secretary's Commission

on

Achieving Necessary Skills (SCANS)

-- Deals at length with shifts in the work force.

Following through with the national agenda, Ohio Division of Vocational and Career Education has developed a reform agenda.

Ohio's Future At Work:

-- Education devises a plan with industry with 11 imperatives to accelerate the modernization of vocational education to: (a) enable the workers to compete in an international economy, (b) become an educated and productive work force, and become more accessible to increased numbers of secondary and adult students.

Occupational Competency Analysis Profile:

-- Educators involved business and industry in a process of identifying and listing the skill training competencies and competency builders necessary for successful entry-level employment from specific occupational training programs.

Employability Skills Training

-- Educators and employers designed an entry-level program for the integration of entrepreneurship, economic education, and lifelong learning concepts. (Implemented: July 1, 1991.)

Applied/Correlated Academics in Vocational Education

-- Upon the recommendations of business, educators devised a system for correlating math, communication skills, and science related technology training into each occupational training area. (Implemented: July 1, 1990.)

Tech Prep

-- For those occupations where post-secondary training benefits the worker and where accelerated training would benefit the workforce; educators and business devised a system for assisting with the advancing of technical manpower needs (To be Completed: July 1, 1994.)

Career Passport

-- Following the national mandate for a career "certificate" for every student in grades 8 through 12, a system was established to enable schools to define and list the entry-level training competencies which they had successfully completed in an occupation. (Implementation: September, 1993)

Career Passport (cont'd)

-- An assessment matching student competency preparations for common occupations identified through the U.S. Department of Labor. (Implementation: September 1993.)

State Wide Pre- and Post-Test Assessment of Student Performances in Skill Training Areas:

-- This test is being practiced in a modified form by most vocational schools at present (Implementation: September 1993.)

The changes outlined above were not the brain child of some group of educators. The changes described above were the result of the collaborative efforts between employers and educators in an effort to begin providing an educated product that will be needed for the workforce of the year 2000 and beyond. In fact, there is a national movement that has already formed to meet these needs in the year 2020. In each and every case mentioned here today, the national agenda of a competitive world workforce was kept in focus. In each and every endeavor mentioned above, business and education were working together.

CONCLUSION

I have three Points of Summary which I think we should keep in mind:

1. Employers and educators will need to form a close coalition to plan, design, and execute a system of education and training which will meet the needs of the workforce of the future. America must be prepared to meet current economic challenges to retain the freedoms we currently enjoy.

2. Education for the workforce must be an ongoing process whether through the familiar *seminar* type basis or advanced systems of training. The end result must be the same--improving the capability of the worker to meet the needs of the ever-changing demands of the workforce.

3. Finally, employers and educators together must strive to demand from their students and workers the experiences that develop in them the work qualities to bring about what Barker so aptly calls anticipation, innovation, and excellence.

In parting I would encourage and challenge each of you in this room as employers: Get involved with the educators of your area, make the necessary demands and willingly direct the way education should be performing in order to meet your employment needs. Together we can! Thank you.

QUALITY MANAGEMENT: A LEADERSHIP IMPERATIVE FOR VOCATIONAL EDUCATION ADMINISTRATORS

Maria Phillips

Polaris Career Center

Today, the challenges facing vocational education call for equally dynamic leadership as reform threatens the integrity of secondary vocational education. We are serving a more diverse clientele at the very time when preparation for entry level work is becoming more complex and periodic retraining essential. The occupational distribution of the workforce is changing rapidly, and serious skill shortages loom. Simply to remain a viable form of American education, we need astute, creative leaders at all levels--leaders for the ongoing work of delivering vocational education to the youth and adults of this nation (Edmunds 1988).

Leaders in vocational education must obviously be aware of and be active in responding to major state and national challenges if they are to exert real leadership. Among these large issues is the question of how we provide a workforce that can be competitive in a world economy. Technology is increasing dramatically resulting in new jobs and significant changes in the requirements of existing jobs (Strong, 1990). Leaders need to take a pro-active role in building effective linkages with business and industry so there is no question as to the role of vocational education as the workforce provider for the nation.

A Leadership Challenge

Those who will lead vocational education into the 21st century must understand the broad scope of vocational education. They will be skilled communicators, skilled in both group dynamics and working one-on-one. They will be as comfortable outside the educational setting as within moving among business, industry, and government as needed. They will be shareholders in a unifying vision, committed to learning and providing education for all citizens.

The leaders we need will have the enthusiasm, energy, and openness to inspire and motivate the best in others. They will respect differences and encourage the expression of opposing views. We need leaders with the courage to be educated risk-takers, willing to take a stand, to pursue new approaches to address the myriad of challenges we face. The various approaches to quality management can assist leaders in vocational education to meet the challenge of the future.

Total Quality Management and Vocational Education

The American business community feels that it can re-emerge as the world's pre-eminent industrial leader by re-establishing the high quality of its products and services. Millions of dollars have been invested by companies, large and small, to give workers and managers quality-training techniques. American education was

once recognized as the best system of its kind; today, it is considered second rate. Test scores are dropping, remediation classes are the norm for high school and college. Many high school graduates cannot read, add, write, or think, and the nation's high school dropout rate is a staggering 30%. Schools must establish the same quality standards and techniques used by some enlightened American businesses to achieve what is called Total Quality Management. Total Quality Management principles espoused by W. Edwards Deming, Joseph M. Juran, and Phillip B. Crosby focus on giving customers what they want, on building quality into products or services, and continuously improving them. If the concept of quality is brought into American schools as it has been brought into businesses, we might be able to regain the quality once associated with our public education system (Schargel, 1991). Total Quality Management is a concept introduced by business and industry to establish standards and techniques. It ensures the quality of products leaving companies and reaching customers through continuous actions rather than through one final inspection. It relies on experience, expertise, and commitment of all members of an organization to improve the process by which customers are served (Lankard, 1992). Three quality theorists whose work has most influenced the quality planning process are W. Edwards Deming, Joseph Juran, and Philip B. Crosby, Sr. The theories of Deming, Juran, and Crosby have a common theme, participatory management, that involves input, problem solving, and decision making by all members of an organization and its

customers.

The management philosophy of most schools is modeled after the old paradigm of Taylorism -- the basis for the assembly line method that permitted mass production of automobiles. Taylorism, developed by Frederick Winslow Taylor, father of scientific management, is the belief that the fittest should manage as benevolent dictators, and that the rest should work. The former do the thinking, and the latter follow directions; consultations between the two groups are discouraged since these interactions threaten the authority of the managing class. This division of labor implied by scientific management quickly became a fundamental paradigm that structured the expectations educators had for the increasingly diverse student population. It also encouraged inequality between types of students, and the types of schoolwork given -- academic versus vocational. While changing industry's Taylorist attitude will be difficult, that task pales in comparison to the job of changing this attitude in the schools, since most educators believe the existing system of student recognition to be fair and normal. Educating and honoring those who are smart in a way that alienates them from other students is no longer acceptable. The new economic order requires mutual respect, not elitism and alienation. It is time to move beyond Taylorism in our high schools. (Gray, 1993).

There is now growing interest in applying quality principles to the educational enterprise with implications that challenge current practice in both administration and curriculum. These

principles are likely to effect a far more significant improvement in the quality of a school's educational program than the remedies currently being recommended at the national level. Quality principles are helping educators view themselves as: (a) supporters rather than judges, (b) as mentors and coaches rather than lecturers, (c) as partners with parents, students, administrators, teachers, businesses and entire communities rather than isolated workers within the walls of the classroom. The only way we can ensure our own growth is by helping others to grow; the only way to maximize our own potentials is by helping others to improve little-by-little, day-by-day. The Japanese call this personal dedication to mutual improvement, *kaizen:* this is the heart and soul of total quality. A true learning organization optimizes its entire system by empowering everyone to continuously improve their work. The processes and products of business are maximized by empowering front-line workers. In the case of the schools the front-line workers are teachers and students.

There are four essential elements of this quality educational paradigm. The Four Pillars of Schools of Quality are:

1. A primary focus on suppliers and customers.
2. Constant dedication to continuous improvement
3. A systems/process orientation
4. Strong and consistent Total Quality leadership from top management.

Each of these Four Pillars has many implications for the work of schools and school leaders (Bonstingl, 1992).

In schools, the customer would seem to be the student not the parent. For the customer determines the product, which in schools is a course of study directed toward the education of the student. We improve the product by attending to the process. We take account of (a) the student responses to new programs, (b) the society's changing demands on students, and (c) the professional's understanding of education as the development of mind and character (Holt, 1993). Schools of Quality determine what their customers and suppliers need by conducting focus groups with parents, students, administrators, teachers and other staff members. Business people, and taxpayers also meet and critique the processes and products of the school system. In vocational education, our programs at both the secondary and adult levels are very much customer-driven since they are taken voluntarily. Vocational educators are more aware of the importance of the customer than the traditional educator teaching a required academic course in a high school.

In Schools of Quality, all individuals must be dedicated to self-improvement and the betterment of other people in their spheres of influence. Rather than encouraging students to explore hidden talents and to build on previous successes and understandings, our tradition of schooling has all too often focused on student failures, inadequacies and limitations. A new message must be conveyed to all students. The message is that (a) they are a critical part of the new economic team (b) their skills

are essential (c) their input of ideas is important.

Working continuously to improve the entire system requires collection and analysis of data to determine which systems need attention. It is best to solve problems at the level that they occur. For example, our Vocational Center has an Effective Schools Committee that meets once a month. The Director also meets with a Principal's Advisory Committee which is made up of staff from our building. The quality approach is not to allocate blame, but to bring together all those who can affect the process and establish a procedure that results in a credible solution.

Another important quality component is training for administrators, teachers, and students. Training for staff should be conducted during school time. This again is a strength area for vocational educators. At our Career Center, we use goal setting as part of the instructors' evaluation. Instructors set three goals for areas they would like to improve. Their progress is checked twice a year.

Fear is as counterproductive in the school as it is in the workplace. The quality approach encourages leaders to create school environments in which strong relationships of mutual respect and trust replace fear, suspicion, and division. Leadership from administrators and policymakers empowers students and teachers to make continuous improvements in the work they do together. Union and management should sit down together to discuss concerns. All players need to trust each other.

Quality principles suggest numerical quotas in favor of more cooperative learning. Deming, Juran, and Crosby believe that people desire to do quality work. Therefore, grading should be eliminated and replaced by mastery which students negotiate with teachers. In vocational education, competencies are measures in a variety of ways including actual skill performance. Skills are measured at each step and frequent feedback is given. This preventive, frequent assessment at every step of the process is consistent with the quality principles practiced by business and industry.

The quality approach is just beginning to happen in some schools. In studying some of these dramatically improved schools, the success of these simple and effective methods is evident. For example, at Central Park East, the director regularly meets with grade and department level teams to hear what they are doing, and is provided with evidence that tells whether students are succeeding on a given task or project. She examines portfolios and asks about what is coming up. Her visits and regular team meetings provide purpose as well as feedback that enables teachers to know if the activities they are providing students are the best they can offer.

Mt. Edgecumbe High School in Alaska is probably the most well-known school using the quality approach. Mt. Edgecumbe focuses its curriculum on the future social and economic needs of Alaska. Every effort is made to regard students as workers, as self-managers. As a result, discipline referrals have all but

disappeared. One instructor eliminated grades but would accept nothing less than what he and his students determined to be quality work. He, and other instructors, spent the first week of a course establishing purpose, and helping students to understand the worth of what they were going to study. Teachers focused on the contribution it would make to the students' personal and career goals. Another school with positive results in a short period of time was George Westinghouse Vocational and Technical High School, the largest vo-tech school in New York City. Westinghouse had problems typical of inner-city schools: aging faculty, poor reading and math skills, lack of motivation, failure, low self-esteem, etc. They used quality techniques to respond to these challenges. By meeting in teams, the parents, staff, and community members pinpointed 23 areas of concern. Each month they identify at least one problem area, by using the fishbone technique and force field analysis. Then they direct their energies to removing its causes. The results at George Westinghouse point out what can happen when people pool their intelligence, assign priorities, and tackle problems.

There are many good pathways to building schools of quality. It is important to develop your own system. Take into account the needs and wants of your customers in the school system and the community. Start with a plan, a process for problem solving, continuing education, effective teams, and continuous improvement. Allow three to five years for results.

Many of the benefits of implementing a quality philosophy in

vocational education are a result of a never-ending process of (a) changing attitudes, (b) practicing teamwork, and (c) improving quality. Likewise, if a vocational school can physically change to meet the needs of the customer, and is dedicated to accepting the psychological changes in attitudes and responsibilities that result from adjustments, then it will succeed.

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